

CLAIMS

1. A method for enhancing survival or proliferation, or both, of a neural stem cell in a liquid medium, the method comprising the step of overexpressing Galectin-1 in the neural stem cell.
2. A method for enhancing survival or proliferation, or both, of a neural stem cell in a liquid medium, the method comprising the step of overexpressing Galectin-3 in the neural stem cell.
3. A method for enhancing survival or proliferation, or both, of a neural stem cell in a liquid medium, the method comprising the step of culturing the neural stem cell in a liquid medium containing Galectin-1.
4. A method for enhancing survival or proliferation, or both, of a neural stem cell in a liquid medium, the method comprising the step of culturing the neural stem cell in a liquid medium containing Galectin-3.
5. The method of claim 1 or 3, wherein the liquid medium comprises a neural stem cell conditioned medium.
6. The method of claim 1 or 3, wherein the liquid medium comprises a neurosphere conditioned medium.
7. The method of claim 1 or 3, wherein the liquid medium comprises an OP cell line conditioned medium.
8. A pharmaceutical composition comprising as an active ingredient a neural stem cell in which Galectin-1 is overexpressed and improving a higher cerebral function damaged by cerebral ischemia .
9. A pharmaceutical composition comprising as an active ingredient a neural stem cell in which Galectin-3 is overexpressed, and improving a higher cerebral function damaged by cerebral ischemia .
10. The pharmaceutical composition of claim 8 or 9, wherein the higher cerebral function is motor function.
11. The pharmaceutical composition of claim 8, wherein the higher cerebral function is sensory function.
12. A therapeutic method for cerebral ischemia, comprising

improving a symptom derived from cerebral ischemia by transplanting a neural stem cell in which Galectin-1 is overexpressed in a mammalian other than a human.

13. A therapeutic method for cerebral ischemia, comprising improving a symptom that originates in cerebral ischemia by transplanting a neural stem cell in which Galectin-3 is overexpressed in a mammalian other than a human.

14. An enhancer for enhancing neurite extension when a neural stem cell differentiates, the enhancer comprising Galectin-1 or Galectin-3 as an active ingredient.

15. A method for enhancing neurite extension when a neural stem cell differentiates, the method comprising the step of overexpressing Galectin-1 in the neural stem cell.

16. A method for enhancing neurite extension when a neural stem cell differentiates, the method comprising the step of overexpressing Galectin-3 in the neural stem cell.

17. An enhancer for enhancing in vivo proliferation of a neural stem cell in a vertebrate, the enhancer comprising Galectin-1 or Galectin-3 as an active ingredient.

18. A method for enhancing in vivo proliferation of a neural stem cell in a normal individual vertebrate, wherein Galectin-1 or Galectin-3 is injected into the brain.

19. A method for enhancing in vivo proliferation of a neural stem cell in a vertebrate other than a human, wherein Galectin-1 or Galectin-3 is injected into the brain.

20. An enhancer for enhancing in vivo proliferation of an SVZ astrocyte in a vertebrate, the enhancer comprising Galectin-1 or Galectin-3 as an active ingredient.

21. A method for enhancing in vivo proliferation of an SVZ astrocyte in a normal individual vertebrate, wherein Galectin-1 or Galectin-3 is injected into the brain.

22. A method for enhancing in vivo proliferation of an SVZ astrocyte in a vertebrate other than a human, wherein Galectin-1 or Galectin-3 is injected into the brain.

23. A method for assaying a target substance added into a liquid medium for activity that enhances survival or

proliferation, or both, of a neural stem cell, the method comprising the steps of:

seeding a neural stem cell at a clonal concentration, using an assay medium composed of a basal medium incapable of inducing proliferation of a neural stem cell under the situation of having been seeded at the clonal concentration;
and

determining whether or not the seeded neural stem cell can proliferate in the assay medium.

24. A method for assaying a target substance added into a liquid medium for activity that enhances survival or proliferation, or both, of a neural stem cell, the method comprising the steps of:

selecting a CD15+ neural stem cell;

seeding the CD15+ neural stem cell selected at a clonal concentration, using an assay medium composed of a basal medium incapable of inducing proliferation of a neural stem cell under the situation of having been seeded at the clonal concentration;
and

determining whether or not the seeded neural stem cell can proliferate in the assay medium.

25. The assay method of claim 23 or 24, wherein the seeding is performed at the clonal concentration by placing one neural stem cell per well of a culture plate.

26. A screening method for identifying an active substance with activity that enhances survival or proliferation, or both, of a neural stem cell among a plurality of target substances, the method comprising identifying the active substance by the assay method of any one of claims 23 to 25.

27. The method of any one of claim 1, 3, 5, 6, 7, 15, 18, 19, 21, or 22, wherein the Galectin is a C-S mutant Galectin.

28. The pharmaceutical composition of claim 8 or 11, wherein the Galectin-1 is a C-S mutant Galectin.

29. The therapeutic agent for cerebral ischemia of claim 12, wherein the Galectin-1 is a C-S mutant Galectin.

30. The enhancer of any one of claim 14, 17, or 20, wherein

the Galectin-1 is a C-S mutant Galectin.